

**Notice of Allowability**

Application No.

10/502,072

Examiner

Tuan H. Nguyen

Applicant(s)

DE COURVILLE ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/19/2004.
2. ☒ The allowed claim(s) is/are 1-12.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 07/19/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

  
**DUC NGUYEN**  
**PRIMARY EXAMINER**

## **DETAILED ACTION**

### ***Reasons For Allowance***

1. Claims 1-18 are allowed over the prior art record.

2. The following is an examiner's statement of reasons for allowance:

Zhuang et al. (U.S PUB. 2003/0112745) discloses a technique for exploiting frequency diversity in OFDM is "spread OFDM" where a user's data symbol is spread across the usable subcarriers using a Walsh sequence. On the other hand, in broadband single carrier systems, each time-domain data symbol occupies the entire system bandwidth, and proper equalization (performed either in the frequency domain or in the time domain) can exploit some frequency diversity in the process of mitigating the ISI. However, because the linear equalizer tries to compensate for channel variation in frequency, the decoder that follows the equalizer is unable to exploit any frequency diversity that was present in the channel.

Laroia et al. (U.S PAT. 6,711,120) teaches decoder receives an overall information stream from transmission tone-to-data extractor and decodes it to develop an overall output information stream. The decoding is often performed according to the inverse of the scheme used to encode the information stream. However, modifications may be made to the decoding scheme to account for channel and other effects to produce a more reliable decoded output than simply using the inverse of the encoding

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scheme. Alternatively specific algorithms may be developed for use in decoding the received signal that take into account channel response, interference, and other effects. Such overall output information stream typically includes information streams generated on behalf of more than one user if OFDM receiver is being used in a base station and only includes information streams for one user if OFDM receiver is being used in a mobile station.

Regarding claims 1 and 7, the prior art made of record, alone or in combination, fails to clearly teach or fairly suggest the decoding algorithm comprises splitting a received block into two equal parts, one of the parts being decoded first and then subtracted from the received vector to suppress part of the interference and the other of the parts being decoded next, in combination with other limitations, as specified in the independent claims 1 and 7, and further limitations of their respective dependent claims 2-6, and 8-12.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. Any response to this action should be mailed to:

Mail Stop\_\_\_\_\_ (Explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(571) 273-8300

Hand-delivered responses should be brought to:

Customer Service Window

Randolph Building

401 Dulany Street

Alexandria, VA 22313


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571) 272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tuan Nguyen  
Examiner  
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**PRIMARY EXAMINER**